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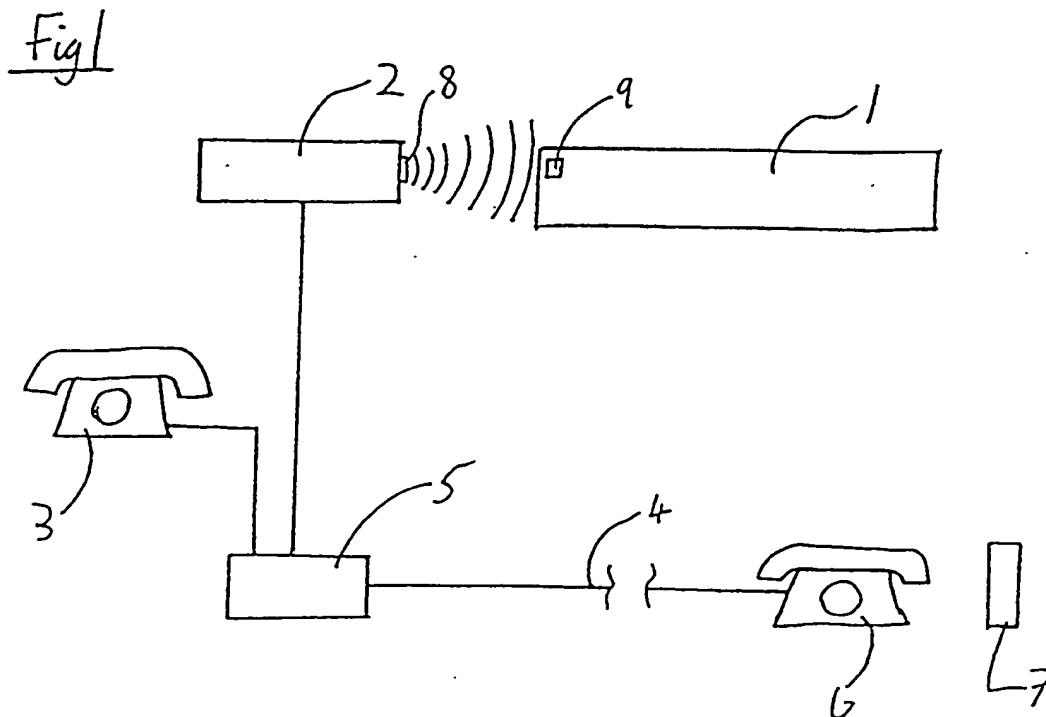
(56) Documents cited
GB 2201065 A GB 2191066 A GB 2166322 A
GB 2130052 A US 4841562 A

(58) Field of search
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(54) **Video recorder remote control**

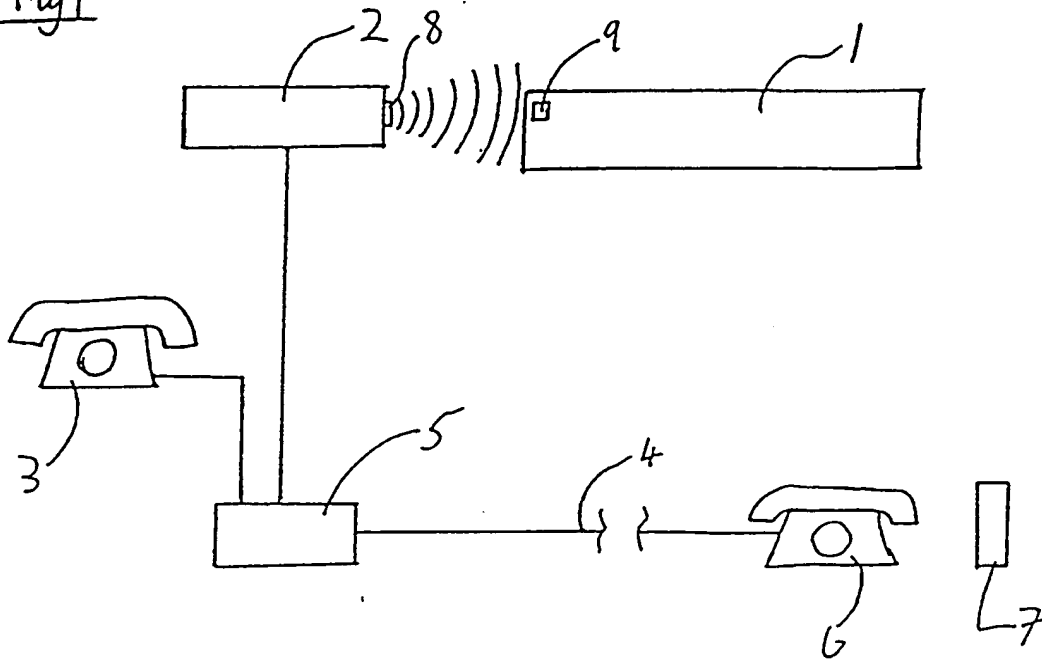
(57) A video recorder remote control uses a portable acoustic generator 7 which transmits instructions to the video recorder down a telephone link, an acoustic decoder 2 is associated with the video recorder to convert the acoustic signals into commands for the video recorder. A diverter 5 is included in the telephone link to allow it to be used for normal calls as well as programming the video recorder.

The decoder may communicate with the VCR over an infra-red link 8. Control data may be input into the transmitter 7 and sent at high speed over the telephone link. To accommodate an answering machine at the subscriber station 3, the diverter may activate both the decoder and the answering machine, subsequently disabling the answering machine if control tones are received. Information indicating whether the VCR is in the "timer set" mode may be reverted to the caller at 6.



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Fig 1



Video Recorder Remote Control

This invention relates to remote control of video recorders.

Video recorders for domestic use, commonly referred to as VCR's, are often used to record broadcast television programmes for later viewing.

This can be done by manually operating the VCR controls at the appropriate times, but since this may not be convenient most VCR's include timing and memory circuitry to allow them to be pre-set to record a programme.

The main drawback of this system is that it is necessary for the user to be present to programme the VCR or to alter its programming. As a result if a viewer decides he wants to record a TV programme or finds that TV schedules have been altered he cannot record the programme he wishes unless he can return to his video recorder.

This invention was intended to allow video recorders to be controlled from a remote location.

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This invention provides apparatus for remote control of a video recorder comprising a diverter and an acoustic decoder associated with a telephone link local to the video recorder and an acoustic transmitter associated, in use, with a telephone remote from the video recorder, arranged so that acoustic signals emitted by the transmitter can be carried from the remote telephone to the decoder by way of the telephone link local to the video recorder and the diverter.

This allows a video recorder to be programmed from any remote location where a telephone is available.

Preferably the diverter normally connects the local telephone link to a local telephone and connects the local telephone link to the acoustic decoder in response to the acoustic signals from the transmitter, this allows the same local telephone link to be used for conventional phone calls and video recorder remote control.

Advantageously the acoustic decoder includes an infra-red radiation source able to co-operate with an infra-red sensor on the video recorder and converts the acoustic signals it receives into modulated infra-red radiation and transmits this to the video recorder, taking

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advantage of the infra-red control facility already provided on many video recorders for use with a hand-held infra-red transmitter to avoid the need to actually wire the decoder to the video recorder.

Referring to Figure 1 a VCR 1 is situated adjacent to an acoustic decoder and control box 2. The control box 2 and a conventional telephone 3 are connected to a phone line 4 by a diverter 5.

When the user wishes to programme or reprogramme the VCR 1 without returning home he dials his telephone number using a telephone 6 at a remote location and after allowing the local telephone to ring for a pre-set period, if the local telephone is not answered the diverter 5 accepts the call.

The user then types the necessary data to programme the VCR 1 into a handset 7 which he holds adjacent the mouthpiece of the remote telephone 6. This data will identify the television channel to be recorded and the times at which recording is to start and finish.

The handset 7 emits this data as a series of acoustic tones which are supplied to the control box 2 by the

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diverter 5. In response to these tones the control box 2 uses an infra-red radiation source 8 to transmit a modulated optical signal at infra-red frequencies, this is received by an infra-red sensor 9 on the VCR 1 and the VCR 1 is set to record the appropriate programme.

The user can then close down the phone link from the remote telephone 6.

If, after accepting a call, the diverter 5 does not detect the appropriate tone from a handset 7 within a pre-set period it will close the telephone link.

In order to reduce the time spent using the telephone 6, and the cost of the telephone call, the handset 7 can be arranged to store the data fed into it and transmit it at high speed when instructed by the user when the telephone call is accepted.

The use of infra-red radiation to transmit instructions from the control box 2 to the VCR 1 is convenient because many commercially available VCR's are already equipped with hand-held infra-red control systems. This system could use the existing infra-red control facilities to allow remote control to be retrofitted to

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VCR's without any adjustment to the VCR's themselves being necessary.

Alternatively the control box 2 could be fitted to or within the VCR and the VCR linked directly to the diverter 5.

If the local telephone 3 has an answerphone associated with it the diverter 5 must connect both the answerphone and the control box 2 to the telephone link when it accepts a call. Then if the control box 2 receives tones from the handset 7 it will re-set the answerphone. This will require a control link from the control box 2 to an answerphone if an answerphone is used.

Other data beyond that given could be supplied to the VCR, for instance an instruction to cancel a previously set recording instruction. In some circumstances less data may be needed, for example a simple instruction to the VCR to begin recording immediately might be sufficient.

Although a phone line 4 is shown connected to the diverter 5 this could be replaced by a non-physical phone link, as used in cellular or cordless telephones for example.

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The diverter 5 could be omitted and the remote control system given its own dedicated telephone link connected directly to the acoustic decoder, but this would generally be undesirable on cost grounds.

In some video recorders, when the VCR has been given instructions to record at a future time it is put into a timer mode in which no further instructions can be received, with VCR's of this type the first-instruction from the control box 2 must be to change mode out of timer mode. Unfortunately in many VCR's this mode change in and out of timer mode is a simple "toggle" operation where the VCR cannot be instructed to go into a specific mode but can only be instructed to change mode from its present mode to the other mode. In this case a link must be provided to allow the control box 2 to determine whether or not the VCR is in timer mode and decide accordingly whether or not to instruct the VCR to change mode.

CLAIMS

1. Apparatus for remote control of a video recorder comprising a diverter and an acoustic decoder associated with a telephone link local to the video recorder and an acoustic transmitter associated, in use, with a telephone remote from the video recorder, arranged so that acoustic signals emitted by the transmitter can be carried from the remote telephone to the decoder by way of the telephone link local to the video recorder and the diverter.

2. Apparatus as claimed in claim 1 in which in response to the acoustic signals emitted by the transmitter the diverter connects the local telephone link to the acoustic decoder, the local telephone link normally being connected to a local telephone.

3. Apparatus as claimed in claim 1 or claim 2 in which the acoustic decoder includes an infra-red radiation source and the video recorder includes an infra-red radiation sensor arranged so that acoustic signals from the transmitter can be converted into modulated infra-red radiation by the acoustic decoder and transmitted to the video recorder.

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4. Apparatus substantially as shown in or as described with reference to the accompanying drawing.

Patents Act 1977
Examiner's report to the Comptroller under
Section 17 (The Search Report)

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Relevant Technical fields

(i) UK CI (Edition K) H4K KOF

(ii) Int CI (Edition 5) H04M 11/00

Search Examiner

P M MARCHANT

Databases (see over)

(i) UK Patent Office

(ii)

Date of Search

29 JANUARY 1992

Documents considered relevant following a search in respect of claims 1-4

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
X	GB 2201065 A (LONG & HOARE) WHOLE DOCUMENT	1-3
X	GB 2191066 A (HASHIMOTO) SEE ESPECIALLY PAGE 2 LINE 73, PAGE 3 LINE 11 PAGE 3 FROM LINE 11, PAGE 4 FROM LINE 1	1-2
X	GB 2166322 A (HASHIMOTO) WHOLE DOCUMENT	1-3
X	GB 2130052 A (HASHIMOTO) SEE PAGE 1 LINES 88-108, PAGE 4 FROM LINE 127 PAGE 5 FROM LINE 81	1-2
X	US 4841562 (LEM) SEE COLUMN 2 LINES 9-28, COLUMN 3 LINES 65-70	1-2

Category	Identity of document and relevant passages	Relevance to claim(s)

Categories of documents

X: Document indicating lack of novelty or of inventive step.

Y: Document indicating lack of inventive step if combined with one or more other documents of the same category.

A: Document indicating technological background and/or state of the art.

P: Document published on or after the declared priority date but before the filing date of the present application.

E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.

&: Member of the same patent family, corresponding document.

Databases: The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).